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Tempe

THE TEMPE PLUMBING CODE

The Tempe Plumbing Code consists of the Uniform Plumbing Code (U.P.C.) 1991 Edition, and the City of Tempe Amendments to the 1991 U.P.C. printed herein as Section 8-704, Chapter 8 of the Tempe City Code. For administrative requirements, see Article VII, Chapter 8, Tempe City Code. **(12)**

All plumbing shall be installed in conformity with the provisions of the Uniform Plumbing Code, 1991 Edition, as published by the International Association of Plumbing and Mechanical Officials, except as otherwise provided for in this code.

The requirements contained herein shall take precedence over any conflicting requirements in the Uniform Plumbing Code. Identification is by corresponding Uniform Plumbing Code, Chapter and Section. Amendments have been underlined for easier identification.

CHAPTER 1

Section 104(f) Combustible Construction is repealed.

Revise Section 108(b) Grease Interceptor as follows:

(b) Grease Interceptor - Any vessel which exceeds the capacity limitation of a "grease trap" as described in Section 711 and Table 7-2, and which is installed and intended to separate grease from wastewater. **(12)**

Section 114 entitled "Definitions - M" is amended by adding the definition of "Manufactured Home" as follows:

Manufactured Home **(6)** - **same as Mobile Home.** Wherever the terms Mobile Home, Mobile Home Space or Mobile Home Park appear in this code, the terms shall also mean Manufactured Home, Manufactured Home Space and Manufactured Home Park.

Section 121 - Entitled, "Definitions - T" is amended by adding the definition of "Trailer Park Sewer" as follows:

Trailer Park Sewer **(2)** - The trailer park sewer is that part of the horizontal piping of a drainage system which begins two (2) feet downstream from the last trailer site connection and which receives the discharge of the trailer site and conveys it to a public sewer, private sewer, individual sewage disposal system or other point of disposal.

CHAPTER 2

Revise Section 204 - Lead as follows:

See Table A. Sheet lead shall be not less than the following:

For safe pans - not less than four (4) pounds per square foot or 1.6 mm thick.

For Flashings or vent terminals - not less than two and one-half (2-1/2) pounds per square foot or .99 mm thick. **(12)**

Lead bends and lead traps shall not be less than one-eighth (1/8) inch (3.2 mm) wall thickness.

CHAPTER 3

Revise Chapter 3 by adding Section 312 as follows:

Section 312 - Installation Standards. Unless otherwise approved, installations of plumbing systems shall comply with the appropriate IAPMO Installation Standards. **(9)**

Revise Subsection (3) of Section 318(b) Testing as follows:

(3) Water test - The water test shall be applied to the drainage and vent systems either in its entirety or in sections. If applied to the entire system, all openings in the piping shall be tightly closed, except the highest opening, and the system filled with water to point of overflow. If the system is tested in sections, each opening shall be tightly plugged except the highest opening of the section under test, and each section shall be filled with water, but no section shall be tested with less than a ten (10) foot (3m) head of water. In testing successive sections, at least the upper ten (10) feet (3m) of the next preceding section shall be tested, so that no joint or pipe in the building (except the uppermost ten (10) feet (3m)) of the system shall have been submitted to a test of less than a ten (10) foot (3m) head of water. The water shall be kept in the system, or in the portion under test, for at least fifteen (15) minutes before inspection starts; the system shall then be tight at all points.

EXCEPTION: For buildings over one story, the uppermost floor may be tested to a height of 42 inches above the floor. **(4)**

Revise Subsection (5) of Section 318(b) Testing as follows:

(5) Building sewer test - Building sewers shall be tested by plugging the end of the building sewer at its points of connection with the public sewer or private sewage disposal system and completely filling the building sewer with water from the lowest to the highest point thereof, or by approved equivalent low pressure air test, or by such other test as may be prescribed by the Administrative Authority. The building sewer shall be watertight at all points.

EXCEPTION: Testing may be waived, provided materials and workmanship **(1)** are acceptable to the Administrative Authority. (See Plumbing Code Directive #9)

Revise Section 318(b) Testing by adding Subsection (13) as follows:

(13) Test gauges - Pressure tests required by this code, which are performed utilizing dial gauges, shall be limited to gauges having a maximum gauge rating not exceeding twice the applied test pressure. **(12)**

CHAPTER 4

Revise Subsection (a) of Section 401 - Materials as follows:

(a) Drainage piping shall be cast iron, galvanized steel, galvanized wrought iron, lead, copper, brass, ABS, PVC, extra strength vitrified clay pipe, or other approved materials having a smooth and uniform bore, except that:

(1) No galvanized wrought iron or galvanized steel pipe shall be used underground and shall be kept at least six (6) inches (152.4mm) above ground.

(2) ABS or PVC DWV piping installations above ground shall be limited to those structures where allowed by the Building Code. (See Exhibit A, Page 27) **(4)(9)**

ABS and PVC DWV piping installed below on-grade slabs may be installed under all structures. Slab penetrations shall be made with metallic pipe in structures where ABS and PVC piping is prohibited. **(12)**

(3) No vitrified clay pipe or fittings shall be used above ground or where pressurized by a pump or ejector. They shall be kept at least twelve (12) inches (.3m) below ground.

Revise Table 4-1 (2) by adding the following:

Kind of Fixture	Minimum Trap & Trap Arm Size	Units
Trailer Park Traps (One for each trailer space)	3"	6

Revise the *Note to Table 4-1 as follows:

***NOTE:** The size and discharge rating of each indirect waste receptor and each interceptor shall be based on the total rated discharge capacity of all fixtures, equipment, or appliances discharging therein to, in accordance with Table 4-2.

Drainage piping serving batteries of appliances capable of producing continuous flows shall be adequately sized to provide for peak loads. Clotheswashers in groups of three (3) or more shall be rated at six (6) units each for the purpose of common horizontal and vertical waste pipe sizing.

Water closets shall be computed as six (6) fixture units when determining septic tank size based on Appendix I of this Code.

Trap sizes shall not be increased to a point where the fixture discharge may be inadequate to maintain their self-scouring properties.

A single trap serving two (2) clotheswashers shall not be less than three (3) inches (76.2 mm) in size. **(12)**

EXCEPTION 3 to Section 406(a) - Cleanouts is repealed. **(12)**

Revise Subsection (c) to Section 406 - Cleanouts as follows:

(c) Each cleanout shall be installed so that it opens to allow cleaning in the direction of flow of the soil or waste or at right angles thereto and ~~except in the case of wye branch and of line cleanouts~~ shall be installed vertically above the flow line of the pipe. Each cleanout shall be installed at or above the floor level served. **(12)**

Revise Subsection (h) to Section 409 - Drainage of Fixtures Below the Next Upstream Manhole or Below the Main Sewer Level as follows:

(h) Sumps and receiving tanks shall be watertight and shall be constructed of concrete, metal, fiberglass or other approved materials. If constructed of poured concrete, the walls and bottom shall be adequately reinforced and designed by an Arizona registered engineer or architect to recognized acceptable standards. Metal sumps or tanks shall be treated internally and externally to resist corrosion. If constructed of metal or fiberglass, the design engineer or architect shall furnish the Building Official with a certification that the installed vessel satisfies his design criteria and specifications, unless the tank is labeled. **(12)**

CHAPTER 5

Revise Subsection (a) of Section 503 - Materials as follows:

(a) Vent pipe shall be cast iron, galvanized steel, galvanized wrought iron, lead, copper, brass, ABS, PVC or other approved materials; except:

(1) That no galvanized wrought iron or galvanized steel pipe shall be used underground and shall be kept at least six (6) inches (152.4 mm) above ground.

(2) ABS or PVC DWV piping installations above ground shall be limited to those structures where allowed by the Building Code. (See Exhibit A, Page 27) **(4)(9)**

ABS and PVC DWV piping installed below on-grade slabs may be installed under all structures. Slab penetrations shall be made with metallic pipe in structures where ABS and PVC piping is prohibited. **(12)**

CHAPTER 6

Revise Subsection (a) of Section 612 - Chemical Wastes as follows:

(9)

(a) Chemical or industrial liquid wastes which are likely to damage or increase maintenance costs on the sanitary sewer system, detrimentally affect sewage treatment or contaminate surface or subsurface waters, shall be pretreated to render them innocuous prior to discharge into a drainage system. Detailed plans and specifications of the pretreatment facilities may be required by the Director of Public Works or his designate.

Piping conveying industrial, chemical or process wastes from their point of origin to sewer connected pretreatment facilities, shall be of such material and design as to adequately perform its intended function to the satisfaction of the Administrative Authority. Drainage discharge piping from pretreatment facilities or interceptors shall conform to standard drainage installation procedure.

Revise Subsection (g) of Section 615 - Combination Waste and Vent System as follows:

(1)

(g) Except where permitted to discharge into a wet-vented mobile home park or trailer park drainage system,* no water closet or urinal shall be installed on any such system. Other one (1), two (2) or three (3) unit fixtures remotely located from the sanitary system and adjacent to a combination waste and vent system may be connected to such system in the conventional manner by means of waste and vent pipes of regular sizes, providing that the two (2) pipe size increase required in subsection (d) of this Section is based on the total fixture unit load connected to the system.

* See Appendix E.

CHAPTER 7

Revise Subsection (c) to Section 701 - Traps Required as follows:

(12)

(c) No food waste disposal unit shall be installed with any set of restaurant, commercial, or industrial sinks served by a single trap; each such food waste disposal unit shall be connected to a separate trap. Except as provided in the note to Table 4-1, each domestic clotheswasher and each laundry tub shall be connected to a separate and independent trap; except that a trap serving a laundry tub may also receive the waste from a clotheswasher set adjacent thereto. No clotheswasher or laundry tub shall be connected to any trap for a kitchen sink.

Revise Section 707 - Trap Seal Protection as follows:

Section 707 - Trap Seal Protection. **(12)** **(First sentence is repealed).** When automatic trap priming devices are installed, they shall be accessible for maintenance.

Revise Subsection (a) of Section 708 - Industrial Interceptors and Separators as follows:

(a) When Required. **(4)** Interceptors (including grease, oil and sand interceptors, etc.) shall be provided when in the judgment of the Director of Public Works or his designated representative they are necessary for the proper handling of liquid waste containing grease, flammable wastes, sand, solids, acid or alkaline substances or other ingredients harmful to the drainage system, the public sewer or sewer-treatment plant or processes. The provisions of Sections 708(b) through (e), 709, 710 and 711 are applicable to the extent as determined above.

Revise Subsection (a) of Section 711 - Grease Traps as follows:

(a) When, in the judgment of the Director of Public Works or his designated representative, waste pretreatment is required, an approved type grease trap complying with the provisions of this section shall be installed in the waste line leading from sinks, drains and other fixtures or equipment in establishments such as restaurants, cafes, lunch counters, cafeterias, bars and clubs, hotel, hospital, sanitarium, factory or school kitchens, or other establishments where grease may be introduced into the drainage or sewage system in quantities that can effect line stoppage or hinder sewage treatment or private sewage disposal. A grease trap is not required for individual dwelling units or for any private living quarters. **(4)**

Revise Section 711 - Grease Traps by adding Subsection (i) as follows:

(i) Waste in excess of 140°F (60°C) shall not discharge into a grease trap. **(12)**

CHAPTER 8

Revise Subsection (d) of Section 802 - Types of Joints as follows:

(d) **Solder and Sweat Joints.** **(8)** Joints in copper tubing shall be made by the appropriate use of approved brass or copper fittings. Surfaces to be joined by soldering shall be cleaned bright by manual or mechanical means. The joints shall be properly fluxed with an approved non-corrosive type flux and made up with approved solder. All solder and fluxes shall be manufactured to approved standards.

Solders and flux having a lead content in excess of two tenths of one percent shall not be used in the installation or repair of any potable water supply system.

Revise Subsection (l) of Section 802 - Types of Joints as follows:

(l) **Plastic Pipe Joints**. **(4)(9)** Every joint in plastic piping shall be made with approved fittings by solvent welded or fusion welded connections, approved elastomeric gaskets, threaded joints, flared joints or mechanical compression fittings only in accordance with applicable IAPMO Installation Standards.

CHAPTER 9

Revise Subsection (e) of Section 907 - Installation as follows:

(e) **Setting** **(4)** - Fixtures shall be set level and in proper alignment with reference to adjacent walls. No water closet or urinal shall be set closer than fifteen (15) inches from its center to any side wall or partition nor closer than thirty (30) inches center to center.

CHAPTER 10

Revise Subsection (b) to Section 1003 - Cross-Connection Control as follows:

(b) The premise owner or responsible person shall have the backflow **(12)** prevention assembly tested by a certified backflow assembly tester at the time of installation, repair, or relocation and at least on an annual schedule thereafter or more often when required by the Administrative Authority. The owner or responsible person shall retain and make available to the Administrative Authority, upon request, the most recent test report certifying that each assembly required to be tested is in good working condition.

Revise Subsection (r) to Section 1003 - Cross-Connection Control as follows:

(r) **Non-potable Water Piping.** **(12)** On all premises where dual water distribution systems exist, one being potable water and the other being non-potable water, the non-potable shall be identified by color marking, metal tags, or a combination of both.

(1) Color Marking: When color marking is used, color bands or total cover paint color shall be yellow. This requirement may be met by painting three inch wide yellow bands at intervals of not more than fifteen (15) feet (4.5m) and at points where piping passes through walls, floors, or roofs, in which case the bands shall be applied to the piping on both sides of the walls and above and below any floor or roof penetrations. Outlets for non-potable water shall be tagged "DANGER - UNSAFE WATER."

(2) Metal Tags or Adhesive-backed Tape: Non-potable water lines may be identified by firmly attached metal tags or adhesive-backed plastic tape bearing the legend "DANGER - UNSAFE WATER" in letters not less than seven-sixteenth (7/16) inch (11.1mm) in height.

Tags or wraparound tape identifiers shall be attached to pipe at intervals of not more than fifteen (15) feet (4.5m) and at either side of points where pipes pass through walls and above and below points where pipes pass through floors or roofs.

Revise Subsection (a) of Section 1004 - Materials as follows:

(12)

(a) Water pipe and fittings shall be of brass, copper, cast iron, galvanized malleable iron, galvanized wrought iron, galvanized steel, or other approved materials. Asbestos-cement, CPVC, PB, PE, or PVC water pipe manufactured to recognized standards may be used for cold water distribution systems outside a building. All materials used in the water supply system except valves and similar devices shall be of a like material, except where otherwise approved by the Administrative Authority.

(5)(7)(9)

CPVC and PB water pipe and tubing listed for the purpose may be used for hot and cold water distribution systems in buildings where allowed by the Building Code.

(7)

CPVC and PB water pipe and tubing shall not be installed in or under a concrete floor slab resting on the ground within a building or structure or parts thereof. The term "building or structure or parts thereof" shall include structures such as porches and steps, carports, covered walks, covered driveways and similar structures and appurtenances.

Revise Subsection (g) to Section 1004 - Materials as follows:

(8)(12)

(g) Pipe and fittings having a lead content in excess of eight (8) percent shall not be used in the installation or repair of any potable water supply system.

Revise Subsection (c) to Section 1007 - Water Pressure, Pressure Regulators and Pressure Relief Valves as follows:

(c) Any water system provided with a pressure regulating device or check valve at its source shall be provided with an approved, listed, adequately sized pressure relief valve.

(12)

All water heating appliances, except for labeled nonstorage instantaneous heaters having an inside diameter of not more than three (3) inches (76.2 mm), when installed, shall be provided with an approved combination temperature and pressure relief valve. The combination temperature and pressure relief valve shall be installed with its sensing element immersed in the water in the top six (6) inches (152.4 mm) of the heater or tank served and shall be set to operate at 210 degrees Fahrenheit or less. The relief valve shall be sized and designed to prevent any further rise in temperature.

EXCEPTION: An approved temperature relief valve and an approved pressure relief valve may be substituted for the combination temperature and pressure relief valve.

In addition to the required pressure relief valve, an approved, listed expansion tank or other device designed for intermittent operation for thermal expansion control shall be installed whenever the building supply pressure is greater than the required relief valve pressure setting or when any device is installed that prevents pressure relief through the building supply. The tank or device shall be sized in accordance with the manufacturer's recommendation.

Revise Subsection (e) to Section 1007 - Water Pressure, Pressure Regulators and Pressure Relief Valves as follows:

(e) Relief valves located inside or outside a building shall be provided with a drain, not smaller than the relief valve outlet, of galvanized steel, hard drawn copper piping and fittings, CPVC or PB with fittings which will not reduce the internal bore of the pipe or tubing (straight length as opposed to coils) and shall extend from the valve to the outside of the building with the end of the pipe not more than two (2) feet (.6 m) nor less than six (6) inches (152.4 mm) above the ground and pointing downward. Such drains may terminate at other locations only when first approved by the Administrative Authority. No part of such drain pipe shall be trapped and the terminal end of the drain pipe shall not be threaded. **(12)**

Revise Subsection (b) of Section 1008 - Installation, Inspection and Testing as follows:

(b) Water pipes shall not be run or laid in the same trench as building sewer or drainage piping constructed of clay or materials which are not approved for use within a building unless both of the following conditions are met:

(1) The bottom of the water pipe, at all points, shall be at least twelve (12) inches (.3m) above the top of the sewer line.

(2) The water pipe shall be placed on a solid shelf excavated at one side of the common trench.

EXCEPTION: The water pipe, if made of soft copper without joints, need not be separated from the sewer line nor placed on a solid shelf. **(2)**

Table 10-1 - Equivalent Fixture Units [(2)] is amended by adding the following:

Fixture	Number of Fixture Units Private Use	Public Use
Trailer Space (each)	6	6

Section 1010 is repealed. (See Chapter 18). [(12)]

CHAPTER 11

Revise Subsection (a) of Section 1106 - Grade, Support and Protection of Building Sewers as follows:

(a) Building sewers shall be run in practical alignment and at a uniform slope of not less than one-fourth (1/4) of an inch per foot toward the point of disposal; provided, that where it is impractical, due to the depth of the street sewer or to the structural features, or to the arrangement of any building or structure, to obtain a slope of one-fourth (1/4) of an inch per foot, any such pipe or piping four (4) inches or larger may have a slope of not less than one-eighth (1/8) of an inch per foot when approved by the Administrative Authority.

EXCEPTION: Lesser slopes may be utilized when designed by a registered engineer, provided: **(1)**

1. The building owner certify in writing that he is willing to accept the lesser slope and,

2. The design engineer certify in writing that it is his opinion that the system will function satisfactorily and that the installation of the system will be under his supervision and control.

Revise Section 1108 - Sewer and Water Pipes as follows:

Section 1108 - Sewer and Water Pipes. Building sewers or drainage piping of clay or materials which are not approved for use within a building shall not be run or laid in the same trench as the water pipes unless both of the following requirements are met:

(1) The bottom of the water pipe, at all points, shall be at least twelve (12) inches (304.8mm) above the top of the sewer line.

(2) The water pipe shall be placed on a solid shelf excavated at one side of the common trench.

EXCEPTION: The water line, if made of soft copper without joints, need **(2)** not be separated from the sewer line nor placed on a solid shelf.

CHAPTER 12

Revise Subsection (g) of Section 1202 - Definitions, as follows:

(g) **Service Piping.** **(1)** The piping and equipment between the street gas main and the gas piping system inlet, which is installed by and is under the control and maintenance of the Gas Utility.

Revise Subsection (c) to Section 1206 - Inspections by adding (3) as follows:

(3) Test gauges shall comply with Section 318(b)13. **(12)**

Revise Subsection (b) and (e) of Section 1213 - Installation of Gas Piping as follows:

(b) No gas piping shall be permitted in or on the ground under any **(4)(6)(11)** building or structure and all exposed gas piping shall be kept at least six (6) inches above grade or structure. No gas piping shall be permitted under an asphalt or concrete paved surface that adjoins any building or structure unless installed in a gas-tight conduit, or other approved method of venting is provided.

The conduit shall be one of the materials listed in Section 1212(a). The interior diameter of the conduit shall be not less than one-half inch larger than the outside diameter of the gas piping. The conduit shall extend to a point not less than twelve (12) inches beyond any area where it is required to be installed, and the outer ends shall not be sealed.

Concealed unprotected gas piping may be installed above grade in approved recesses or channels.

EXCEPTION: When necessary due to structural conditions, approved type gas piping may be installed in other locations, when permission has first been obtained from the Administrative Authority.

(e) Underground ferrous gas piping shall be electrically isolated from the rest of the gas system with listed isolation fittings installed a minimum of six (6) inches above grade.

Exception: Ferrous risers on non-metallic underground gas piping need not (9) be equipped with isolation fittings.

CHAPTER 13

Subsection (g) of Section 1310 - Protection from Damage is repealed. (12)

Revise Subsections (b) and (d) of Section 1311 - Access and Working Space as follows:

(b) By a stairway or ladder permanently fastened to the building for access (4)(9) to every attic, roof, mezzanine or platform. Such ladder shall not be more than eighteen (18) feet (5.5m) in length between landings and not less than sixteen (16) inches (400mm) in width. Such ladder shall have rungs spaced not more than fourteen (14) inches (355mm) center to center and not less than six (6) inches (152.4mm) from face wall. Each stile to extend forty-two (42) inches (1007mm) above surface to be reached, or as high as possible, if height is limited.

EXCEPTION: 1. A portable ladder or other portable means may be used for access to a water heater on the roof of:

(a) A one or two story Group R, Division 1 or 3 and Group M Occupancy Building.

(b) A one-story building not exceeding sixteen (16) feet in height from the adjacent grade to the point of access to the roof.

2. A fixed ladder may terminate eight (8) feet above adjacent grade.

3. A portable ladder or other portable means may be used for access to a water heater in an attic or on a mezzanine or platform not exceeding sixteen (16) feet in height from the floor level below to the point of access.

(d) By a passageway to an attic water heater having continuous flooring not (4) less than twenty-four (24) inches in width from the attic access to the water heater.

CHAPTERS 14-17

No provisions.

CHAPTER 18

FLOW REDUCTION

Section 1801 - Purpose. (3)(11)

The purpose of this chapter is to establish maximum rates of flow for plumbing fixtures and to regulate the use of water conditioners and evaporative cooling systems in order to conserve water and reduce waste water flows.

Section 1802 - Scope. (3)(11)(12)

The provisions of this chapter shall apply to the installation of plumbing fixtures, water conditioners and evaporative cooling systems in all new buildings and additions to existing buildings, and to the replacement of plumbing fixtures, water conditioners and evaporative cooling systems.

EXCEPTION: Special purpose plumbing fixtures for safety or the disabled are exempt from flow rate limitations.

Section 1803 - Water Closets. **(3)(11)(12)**

Water closets shall be designed, manufactured and installed so as to provide a maximum flush not to exceed 1.6 gallons. Average water usage over a range of test pressures shall not exceed 1.6 gallons per flush and shall not exceed 2 gallons per flush at any test pressure.

Section 1804 - Urinals. **(3)(11)(12)**

Urinals shall be designed, manufactured and installed so as to provide a maximum flush not to exceed 1.0 gallons.

Section 1805 - Shower Heads. **(3)(11)**

(a) Shower heads shall be designed, manufactured and installed or shall be equipped with flow control devices so as not to exceed a water flow rate of three gallons per minute at 80 psi operating pressure.

Section 1806 - Faucets. **(3)(11)**

(a) **General.** All lavatory faucets and residential kitchen and bar sink faucets shall be designed, manufactured and installed or shall be equipped with flow control devices or aerators so as not to exceed a water flow rate of 3.0 gallons per minute at 80 psi operating pressure.

(b) **Public Restrooms.** Except where designed and installed for use by the physically handicapped, lavatory faucets located in restrooms intended for use by the general public shall close automatically after delivering no more than an average of one quart of water. **(12)**

Section 1807 - Water Conditioning Systems. **(11)**

Water conditioning systems, including water softening, reverse osmosis and other types of filtration devices that allow continuous flow when not in use shall be equipped with an automatic shutoff valve.

EXCEPTION: Water conditioning systems which are part of an industrial or manufacturing process.

Section 1808 - Evaporative Cooling Systems. **(11)**

A recirculating water pump shall be installed as part of all new or replacement evaporative cooler units.

APPENDICES A - C

No Amendments.

APPENDIX D

Revise Subsection (a) of Section D1 Materials as follows:

(a) Rainwater piping placed within the interior of a building or run within a vent or shaft shall be of cast iron, galvanized steel, wrought iron, brass, copper or lead ABS or PVC DWV, or other approved materials.

ABS or PVC DWV piping installations above ground shall be limited **(4)(9)(12)** to those structures allowed by the Building Code. (See Exhibit A, page 27)

ABS and PVC DWV piping installed below on-grade slabs may be installed **(12)** under all structures. Slab penetrations shall be made with metallic pipe in structures where ABS and PVC piping is prohibited.

Revise Section D3.1 as follows:

D3.1 Vertical rainwater piping shall be sized in accordance with Table D-1. (Table D-1 is based upon maximum inches (mm) of rainfall per hour falling upon a given roof area in square feet (m^2). Consult local rainfall figures to determine maximum rainfall per hour.

Design rainfall shall not be less than 6 inches per hour. **(9)**

APPENDIX E

MOBILE HOME PARKS AND TRAILER PARKS **(1)**

Part A: Definitions

E1.1 Mobile Home: A portable structure exceeding eight feet in width and twenty-eight feet in length, built on a chassis having no foundation other than wheels, jacks or blocks and containing a flush toilet, lavatory, bath or shower and kitchen facilities designed for occupancy as a dwelling unit. Any vehicle which is self-propelled or does not meet the requirements of a mobile home as set forth herein in any manner shall be designated as a trailer coach for the purpose of this Chapter and shall not be permitted in a mobile home park.

E1.2 Trailer Coach: Any vehicle whether or not self-propelled used or that may be used as a conveyance upon a public street or highway on its own wheels and designed or constructed in such a manner as to permit occupancy as a dwelling or sleeping place for one or more people.

E2.1 Mobile Home Space: That portion of a Mobile Home Park set aside and designated for occupancy of a mobile home and including the area set aside and used for parking, buildings or structures, patio covers or awnings, accessory to the mobile home and their required setbacks.

E2.2 Trailer Space: That portion of a trailer park set aside and designated for occupancy of a trailer coach and including the area set aside and used for parking, buildings or structures, patio covers or awnings, accessory to the trailer coach and their required setbacks.

E3.1 Mobile Home Park: A parcel of land approved for development with mobile homes and accessory uses approved by the Zoning Ordinance, or as approved in a planned residential development. Existing and new parks which do not meet the requirements of the Zoning Ordinance for a mobile home district or planned residential development for mobile homes shall be classified for the purpose of this Chapter as a trailer park.

E3.2 Trailer Park: A parcel of land used or offered for use in whole or in part for the rental of trailer sites for parking trailer coaches or mobile homes being used for living or sleeping purposes as authorized by the Zoning Ordinance, but not including mobile home parks.

General

E4 Mobile Home Park and Trailer Park plumbing and drainage systems shall be designed and installed in accordance with the requirements of this Appendix and the Installation Requirements of this Code.

E5 Before any plumbing or sewage disposal facilities are installed or altered in any mobile home park or trailer park, duplicate plans and specifications shall be filed and proper permits obtained from the Department or Departments having jurisdiction. Plans shall show in detail:

(a) Plot plan of the park drawn to scale, indicating elevations, property lines, driveways, existing or proposed buildings and the sizes of mobile home or trailer spaces.

(b) Complete specification and piping layout of proposed plumbing system or alteration.

(c) Complete specification and layout of proposed sewage disposal system or alteration.

(d) Plans and specifications submitted to the enforcement agency shall be of sufficient clarity to indicate the nature and extent of the work proposed and show in detail that such work will conform to the provisions of this Code.

Part B - Construction

E6 Drainage System. An adequate and safe sewage drainage system shall be provided in all mobile home and trailer parks for conveying and disposing of all sewage. All new improvements shall be designed, constructed and maintained in accordance with applicable laws and regulations. Where the drainage lines of the mobile home park or trailer park are not connected to a public sewer, pursuant to Section 1101, all proposed private sewage disposal facilities shall be approved by the Maricopa County Health Department prior to obtaining a permit.

E7 Material. Pipe and fittings installed underground in mobile home park and trailer park drainage systems shall be of material approved for the purpose. Mobile home space, and trailer space drain inlets and extensions to grade shall be of material approved for underground use within a building.

Traps, tail pipes, vertical vents, the upper five (5) feet of any horizontal vent and the first 5 feet of any trap branch shall be fabricated from materials approved for underground use within a building; provided, however, that approved-type pipe may be used for the balance of the system when not under any mobile home, trailer coach or possible future building sites.

E8 Sewage Collection Lines. All sewage collection lines shall be located in trenches of sufficient depth to be free of breakage from traffic or other movement and shall be separated from the park water supply system at a safe distance. See Section 1108 where sewer and water are to be located in the same trench. Sewage collection lines shall be at a grade which will insure a velocity of two (2) feet per second when flowing full. The system shall be designed for a minimum flow of 150 gallons per day per mobile home space or trailer space.

E9 Mobile Home Space and Trailer Space Drain Inlet and Lateral.

(a) Size. Each space shall be provided with a drain inlet not less than three (3) inches in diameter to receive the waste from mobile homes and travel coaches.

(b) The sewage drain inlet shall have a nominal inside diameter of at least three (3) inches.

(c) The lateral line from the inlet to the sewage drain line shall slope at least one-fourth (1/4) inch per foot. All joints shall be water tight.

(d) Provisions shall be made for plugging or capping the sewage drain inlet when a mobile home or trailer coach does not occupy the space. Surface drainage shall be diverted away from the inlet. The rim of the inlet shall extend not more than four (4) inches above ground elevation.

E10 Stabilization. Each drain inlet shall be protected from movement by being encased in a concrete slab not less than three and one-half inches in thickness and surrounding the inlet not less than six inches on any side, or by equivalent protection.

E11 Location, Drain Inlet. Each mobile home space and trailer space drain inlet shall be located within a four-foot area in the rear one-third of the mobile home space or trailer space on the left (road) side of the mobile home or trailer coach with respect to the location or proposed location of the mobile home or trailer coach on the space.

E12 Trap.

(a) Each drain inlet shall be provided with an effectively vented trap not less than three (3) inches in diameter.

(b) Mobile home space drain inlets may be installed without traps in mobile home parks where the mobile home plumbing fixtures are effectively trapped and vented. This provision may be used only if the owner of the mobile home park files an Affidavit on a form provided by the Administrative Authority for recording, stating that all mobile homes to be installed in the park will be certified, and bear the approved seal of the Division of Building Codes, State of Arizona, or equivalent approval.

E13 Venting. Each drain inlet trap shall be individually vented with a vent pipe not less in size than two inches interior diameter, except as provided for in Section E15.

E14 Location and Support. All vent pipes, in outdoor locations, shall be located at least ten (10) feet from an adjoining property line and shall extend at least ten (10) feet above ground level. All vent pipes shall be securely fastened to a 4" x 4" minimum redwood or pressure-treated post, embedded in a concrete slab not less than 3-1/2 inches in thickness

and surrounding the post not less than 6 inches on all sides. The post shall extend a minimum of two (2) feet below grade.

Galvanized steel vents not less than two inches diameter anchored in a 12 inch square concrete base may be used in lieu of the 4 x 4 post provided that the concrete extends not less than 12 inches above the junction with the drain pipe fitting. Galvanized steel vent pipe and that portion of the drain pipe and fitting encased in the concrete pad shall be first coated with bituminous paint or equivalent protective material. The upper or lower 5 feet of the drainage pipe and the vent pipe fitting shall be of material approved for underground use within a building.

E15 Wet Vented Systems. In lieu of the individual vents, the park drainage system may be wet vented by means of a combination drain and vent system. Wet vented systems in which the trap for one or more lots is not individually vented shall be of sufficient size and provided with an adequate vent or vents to assure free circulation of air therein. Wet vented drainage systems may be permitted only when each such system conforms to Table E1 and Table E2 and all of the following requirements for such systems:

(1) A wet vented drainage system shall have installed a terminal vent located not more than 15 feet downstream from the uppermost trap on any branch line and shall be relief-vented at intervals of not more than 100 feet or portion thereof.

(2) Wet vented drainage laterals shall be not more than six feet in length for three inch diameter pipe and not more than fifteen in length for four inch diameter pipe.

(3) No vertical drain pipe shall be permitted in any wet vented drainage system, except the tail pipe of the trap or riser of the drain inlet. Tail pipes shall be as short as possible, and in no case shall exceed two feet in length.

(4) No building drain or part thereof shall function as a wet vent.

(5) The drainage system of a utility building or any other building drain, shall not discharge into a wet vented drainage system unless the park drainage lateral, into which such a drain discharges, is increased two pipe sizes larger than required for the total fixture unit load of such utility building and any other building, mobile home space or trailer space loads connected to that piping.

E16 Systems Without Traps. Drainage systems without traps need not be provided with terminal or relief vents.

E17 Pipe Size.

(a) Each mobile home space and trailer space drain inlet shall be assigned a waste loading valve of six fixture units and each park drainage system shall be sized according to Table E-1 or as provided herein. Drainage laterals shall be not less than three inches in diameter.

(b) A park drainage system which exceeds the fixture unit loading of Table E-1 or in which the grade and slope of drainage pipe does not meet the minimum specified in Table E-2 shall be designed by a registered professional engineer. All drainage systems with slopes of less than one-eighth of an inch per foot shall be certified in accordance with Section 1106(a) as amended.

(c) Park drainage systems installed without P-Traps or vents may be sized in accordance with Table E-1 for individually vented systems.

TABLE E-1

Drainage Pipe Diameter and

Number of Fixture Units on Drainage System

	Size of Drainage Pipe (Inches)	Max. No. of Fixture Units Individually Vented System	Terminal and Relief Fixture Units Wet Vented System	Vent - Wet Vented System (Inches)
*	2	8	4	2
	3	35	14	2
	4	180	35	3
	5	356	180	4
	6	600	356	4

* Except (6) Unit Fixtures and Laterals

TABLE E-2

Minimum Grade and Slope of Drainage Pipe

Pipe Size (Inches)	Slope Per 100 Ft. (Inches)	Pipe Size (Inches)	Slope Per 100 Ft. (Inches)	
2		25	6	8
3		20	8	4
4		15	10	3-1/2
5		11	12	3

E18 Mobile Home Drain Connector.

(a) A mobile home shall be connected to the park drain inlet by means of a drain connector consisting of approved pipe not less than Schedule 40, appropriate fittings and connectors, and not less in size than the mobile home drain outlet. The fitting connected to the park drain inlet shall be a directional fitting to discharge the flow into the drain inlet. A flexible connector shall be used at each end of the pipe.

(b) A drain connector shall be installed or maintained with a grade not less than one-fourth inch per foot. A drain connector shall be gas-tight and no longer than necessary to make the connection between the mobile home out let and the drain inlet on the lot. Each drain inlet shall be capped gas-tight when not in use.

Part C - Water Supply

E19 General Requirements. An accessible, adequate, safe and potable supply of water shall be provided in each mobile home park and trailer park. Where a public supply of water of satisfactory quantity, quality and pressure is available at or within the boundary of the park site, connection shall be made thereto and its supply used exclusively. When a satisfactory public water supply is not available, a private water supply system shall be developed and used as approved by the Administrative Authority.

E20 Lot Service Outlet. Each mobile home space and trailer site shall be provided with a water service outlet delivering safe, pure and potable water. The water service outlet riser shall be not less than three-fourths inch nominal pipe size.

E21 Location, Water Service. Each mobile home space and trailer space water service outlet shall be located within a four foot area in the rear one-third of the mobile home space or trailer space on the left (road) side of the mobile home or trailer coach with respect to the location or proposed location of the mobile home or trailer coach on the space.

E22 Pressure. Each mobile home park and trailer park water distributing system shall be so designed and maintained as to provide a pressure of not less than twenty pounds per square inch at each mobile home space or trailer space at maximum operating conditions.

E23 Water Pipe Size.

(a) The quantity of water required to be supplied to each mobile home space or trailer space shall be a minimum of six fixture units.

(b) Park water distributing systems shall be designed and installed as set forth in Chapter 10, Appendix A of this code.

E24 Shutoff Valve. A separate water shut-off valve shall be installed in each water service outlet at a mobile home space or trailer space. The shut-off valve shall be located on the supply side of the backflow protective device.

(10)

E25 Backflow Preventer. A backflow preventer shall be installed in the water service line to a trailer coach at or near the water service outlet at least 12 inches above ground. A backflow preventer need not be installed in the water service line to a mobile home.

E26 Pressure Relief Valve. An approved pressure relief valve shall be installed in the water service line on the discharge side of the backflow preventer. Pressure relief valves shall be set to release at a pressure not to exceed 150 pounds per square inch. Pressure relief valves shall be at least 12 inches above ground and shall discharge downward.

E27 Mechanical Protection. All park water service outlets, backflow preventers and pressure relief valves shall be protected from damage by vehicles or other causes. Such protection may consist of posts, fencing, or other permanent barriers.

E28 Mobile Home Water Connector. A mobile home shall be connected to the park water service outlet by a flexible connector, such as copper tubing or other approved material, not less than one-half inch interior diameter.

E29 Water Conditioning Equipment.

(a) **Permit Required.** A permit shall be obtained from the Administrative Authority prior to installing any water conditioning equipment on a mobile home space or trailer space.

(b) **Approval.** Regenerating water conditioning equipment shall be listed and labeled by an approved listing agency.

(c) **Installation.** An approved backflow preventer shall be installed in the water service line on the inlet side of every water conditioning unit. Regenerating units shall discharge the effluent of regeneration into a trap not less than one and one-half inches in diameter connected to the park drainage system. An approved air gap shall be installed on the discharge line a minimum of 12 inches above the ground. The trap need not be vented.

E30 Testing. Installations shall be tested and inspected as required by the Installation Requirements of this code.

Part D. Fuel Gas Equipment and Installations.

E31 General. Except as otherwise permitted or required by this Appendix, all fuel gas equipment and installations in mobile home parks and trailer parks shall comply with the provisions of this code. The provisions of this Appendix do not apply to the gas piping and equipment installed during manufacture of the mobile home or trailer coach.

E32 Permits. Before any gas equipment or installations are constructed or altered in a mobile home park or trailer park, a permit shall be obtained from the Administrative Authority as provided in this code.

E33 Plans. Two complete sets of plans and specifications shall be submitted with the application for a permit as provided in this code. Load calculations of the gas piping system shall be provided with the plans.

E34 Required Gas Supply. The minimum hourly volume of gas required to each mobile home space or trailer space outlet or any section of the mobile home or trailer park gas piping system shall be calculated as shown in Table E-3.

TABLE E-3

Demand Factors for Use in Calculating Gas Piping Systems in Mobile Home Parks

No. of Mobile Home Sites	BTU Per Hour Per Mobile Home Site
1	125,000
2	117,000
3	104,000
4	96,000
5	92,000
6	87,000
7	83,000
8	81,000
9	79,000
10	77,000
11-20	66,000
21-30	62,000
31-40	58,000
41-60	55,000
Over 60	50,000

E35 Required gas supply for buildings or other fuel gas consuming appliances connected to the mobile home or trailer park gas piping system shall be calculated as provided in Chapter 12 of this code.

E36 Installation.

(a) All gas piping installed below ground shall have a minimum earth cover of 18 inches (except vertical risers).

(b) Gas piping shall not be installed above ground under any mobile home or trailer coach. (See Section E31).

E37 Location. Gas piping shall not be installed underground beneath buildings or that portion of the mobile home spaces or trailer spaces reserved for the location of mobile homes, trailer coaches, their accessory buildings or structures, concrete slabs or automobile parking, unless installed in a gas-tight conduit.

The conduit shall be pipe approved for installation under ground beneath buildings and not less than Schedule 40 pipe. The interior diameter of the conduit shall be not less than one-half inch larger than the outside diameter of the gas piping.

The conduit shall extend to a point not less than 12 inches beyond any area where it is required to be installed, or the outside wall of a building, and the outer ends shall not be sealed. Where the conduit terminates within a building, it shall be readily accessible and the space between the conduit and the gas piping shall be sealed to prevent leakage of gas into the building.

A gas piping lateral terminating in a mobile home space or trailer space outlet riser surrounded by a concrete slab, used for stabilizing other utility connections, shall not be required to be installed in a conduit provided the concrete slab is entirely outside the wall line of the mobile home or trailer coach, and is not continuous with any other concrete slab.

E38 System Shutoff Valve. A readily accessible and identified shutoff valve controlling the flow of gas to the entire gas piping system shall be installed near the point of connection to the service piping or supply connection of the liquefied petroleum gas tank.

E39 Mobile Home Space and Trailer Space Shutoff Valve. Each mobile home space and trailer space shall have an approved gas shutoff valve installed upstream of the space gas outlet and located on the outlet riser at a height of not less than 4 inches above grade. Such valve shall not be located under any mobile home or trailer coach.

E40 Mobile Home Space and Trailer Space Gas Outlet.

(a) Each mobile home space or trailer space piped for gas shall be provided with an individual outlet riser at the mobile home space or trailer space.

(b) The mobile home space or trailer space gas outlet shall terminate with the service connection located within a 4 foot area in the rear one-third of the mobile home space or trailer space on the left (road) side of the mobile home or trailer coach with respect to the location, or proposed location of the mobile home or trailer coach on the space.

E41 Mobile Home and Trailer Coach Connector. Each mobile home or trailer coach shall be connected to the space gas outlet by an approved connector not exceeding 6 feet in length. Approved pipe fittings may be used between the flexible connector and the space gas outlet when the distance between the space gas outlet and the mobile home or trailer coach gas service connection exceeds 6 feet. Gas connectors shall be of a size to adequately supply the total demand of the connected mobile home or trailer coach.

E42 Mechanical Protection. All gas outlet risers, regulators, meters, valves or other exposed equipment shall be protected from mechanical damage by vehicles or other causes. Such protection may consist of posts, fencing, or other permanent barriers.

Atmospherically controlled regulators shall be installed in such a manner that moisture cannot enter the regulator vent and accumulate above the diaphragm. Where the regulator vent may be obstructed due to snow and icing conditions, shields, hoods, or other suitable devices shall be provided to guard against closing the vent opening.

E43 Gas Meters.

(a) Meters shall not be installed in unventilated or inaccessible locations, or closer than 3 feet from sources of ignition.

(b) When meters are installed by other than the gas utility, they shall not depend on the gas outlet riser for support, but shall be adequately supported by a post or bracket placed on a firm footing or other means providing equivalent support.

E44 Gas Piping Size.

(a) **Natural Gas.** The size of each section of natural gas piping systems shall be determined as specified in Chapter 12 and Appendix F of this code or other standard engineering methods acceptable to the Administrative Authority.

(b) **Liquefied Petroleum Gas.** The size of each section of liquefied petroleum gas piping systems may be determined by Chapter 12 and Appendix F of this code or other standard engineering methods acceptable to the Administrative Authority.

E45 Maintenance. The owner of every mobile home park or trailer park shall be responsible for maintaining all gas piping installations and equipment in good working condition.

E46 Authority to Disconnect. The Administrative Authority is authorized to order the gas utility or person supplying gas to a mobile home park or trailer park to disconnect any gas piping or equipment found to be defective and in such condition as to endanger life or property.

Gas piping or equipment which has been disconnected shall not be reconnected to a gas supply until a permit has been obtained to alter or reconstruct the gas piping and the completed work has been inspected and approved by the Administrative Authority.

E47 Inspections and Tests. Inspections and Tests shall be made in accordance with Chapter 12 of this code.

(DRAWING INSERT)

APPENDICES F THROUGH H

No Amendments

APPENDIX I

Revise Subsection (a) of Section I-1 - Private Sewage Disposal as follows:

(a) Where permitted by Section 1101, the building sewer may be connected to **(1)** a private sewage disposal system complying with the requirements of the Maricopa County Health Department. In the event that the Maricopa County Health Department does not have jurisdiction, the provisions of this Appendix shall apply.

The type of system shall be determined on the basis of location, soil porosity, and ground water level and shall be designed to receive all sanitary sewage from the property. The system, except as otherwise provided, shall consist of a septic tank with effluent discharging into a sub-surface disposal field, into one or more seepage pits or into a combination of sub-surface disposal field and seepage pits.

APPENDIX K

Battery Drainage System **(4)**

A horizontal branch, soil or waste pipe, to which two (2) or more water closets (except blow-out type), pedestal urinals, shower stalls, or floor drains are connected in a battery, may be vented by a circuit or loop vent.

When lavatories or similar fixtures discharge above such branches, each vertical branch shall be provided with a continuous vent which may be connected to the circuit or loop vent of the battery.

The circuit or loop vent of a battery drainage system shall be installed vertically in front of the last upstream fixture. In addition, lower floor branches serving more than three (3) water closets shall be provided with a relief vent taken off vertically in front of the first fixture connection.

No more than eight (8) water closets may be connected to a battery drainage system. The fixture unit value for all fixtures shall be as listed in Tables 4-1 and 4-2. The horizontal branch for its full length to the furthest fixture shall be uniformly sized as listed in Table 4-3, based on the total number of fixtures.

The vent of a battery drainage system shall be sized for the fixture unit demand of the battery system according to Table 4-3 based on the total number of fixtures. The relief vent may be wet vented with a fixture drained vertically into the battery drainage system, such vent shall be the same size as the circuit vent it intersects.

All vents shall rise vertically to six (6) inches (152.4 mm) above the flood level of the highest fixture on the system.

(APPENDIX K INSERT)

(APPENDIX K INSERT)

(APPENDIX K INSERT)

EXHIBIT A - Uses Permitted for Types II N, III N, and V N Construction*

OCCUPANCY CLASS-IFICATION	DESCRIPTION	MAXIMUM [2] HEIGHT IN STORIES
A-3	Any building, or portion thereof, having an assembly room with an occupant load of less than 300, without a stage, including such buildings used for educational purposes and not classified as a Group E or Group B, Division 2 occupancy. [1]	1
A-4	Stadiums, reviewing stands and amusement park structures not included within other Group A occupancies.	1
B-1	Gasoline and service stations, storage garages where no repair work is done except exchange of parts and maintenance requiring no open flame, welding, or the use of highly flammable liquids.	2
B-2	Wholesale and retail stores, office buildings, drinking and dining establishments having an occupant load of less than 50, printing plants, municipal police and fire stations, factories, and workshops using material not highly flammable or combustible, storage and sales rooms for combustible goods, paint stores without bulk handling. Buildings, or portions thereof, having rooms used for educational purposes beyond 12th grade, with less than 50 occupants in any room.	2
B-3	Aircraft hangars where no repair work is done except exchange of parts and maintenance requiring no open flame, welding or the use of highly flammable liquids. Open parking garages,* Heliports.	2
B-4	Ice plants, power plants, pumping plants, cold storage and creameries, factories and workshops using noncombustible and nonexplosive materials. Storage and sales rooms of noncombustible and nonexplosive materials.	2
E-1	Any building used for educational purposes through the 12th grade by 50 or more persons for more than 12 hours per week or four hours in any one day.	1
E-2	Any building used for educational purposes through the 12th grade by less than 50 persons for more than 12 hours per week or four hours in any one day.	1
E-3	Any building used for day-care purposes for more than six children.	1
H-1	Storage and handling of hazardous and highly flammable or explosive materials other than flammable liquids.	1
H-2	Storage and handling of Classes I, II and III-A liquids as specified in UBC Standard No. 9-1, dry cleaning plants using flammable liquids, paint stores with bulk handling, paint shops and spray painting rooms and shops.	1
H-3	Woodworking establishments, planing mills, box factories, buffing rooms for tire rebuilding plants and picking rooms; shops, factories or warehouses where loose combustible fibers or dust are manufactured, processed, generated or stored, and pin refinishing rooms.	1
H-4	Repair garages.	1
H-5	Aircraft repair hangars.	1
R-1	Hotels and apartment houses, convents and monasteries (each accommodating more than 10 persons)	2
R-2	Not used.	
R-3	Dwellings and lodging houses.	3

* Excerpt from Table 5D, Uniform Building Code as adopted.

[1] Except drinking and dining establishments.

[2] Where additional stories are permitted due to an automatic sprinkler system, combustible pipe and fittings are permitted provided fire resistive construction is not required.

REFERENCES

(1) Ordinance 641.4 - Effective 4-27-74

(2) Ordinance 641.5 - Effective 10-3-76

(3) Ordinance 641.6 - Effective 1-1-81

(4) Ordinance 641.8 - Effective 4-10-82

(5) Ordinance 641.9 - Effective 6-26-82

(6) Ordinance 641.10 - Effective 12-11-82

(7) Ordinance 86.54 - Effective 9-29-86

(8) Ordinance 88.40 - Effective 6-20-88

(9) Ordinance 90.40 - Effective 9-9-90

(10) Ordinance 90.43 - Effective 10-29-90

(11) Ordinance 91.06 - Effective 3-31-90

(12) Ordinance 94.21 - Effective 9-10-94